PRECISION
POWER METER

PRECISION User Manual

PRECISION Specifications

Operating temperature (°C)	-20 to +50
Battery type	User-replaceable CR3032 3V
Battery life – riding (hrs)	50-100
Waterproof	IP 65
Radio frequency	2.4 GHz
Cadence (RPM)	10 RPM to 170 RPM
Accuracy	+/- 1%
Power Range	0W - 4000W
Communications Protocols	ANT+ and Bluetooth Smart
Dimensions	32mm x 28mm x 7.2mm
Weight	9g (with battery) 6g (without battery)

ANT+ Bluetooth SMART CE FC

Getting Started

Prior to Your First Ride:
Follow all the instructions in the Set-Up section below.

Prior to EVERY Ride:
1. Wake up your PRECISION by rotating your crank arms several times.
2. Zero your PRECISION as per the steps below. For best results, zero in the same or similar temperature of your ride environment.
3. Ride!

Set-Up your PRECISION

A. Initial set-up

1. Remove the cap from the PRECISION pod.
Place your fingers on the two cap tabs and twist the cap counter clockwise to open.

2. Place the coin cell (CR2032) battery into the cap. (You'll find two batteries within your PRECISION box.)
Ensure that the side of the battery marked with '+' is placed against the interior wall of the cap – i.e. the side with the metal clips.

Quick Tip: *Try to keep both (or multiple) coin cell batteries separate, as the risk of prematurely shorting these batteries increases if they touch (i.e. two new batteries can quickly become two dead batteries).*

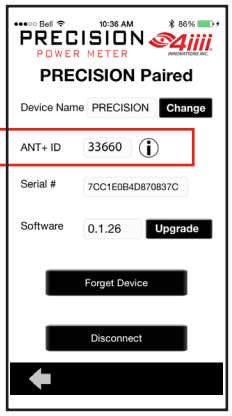
3. Re-Install crank arm(s) and pedals onto your bike
Follow the instructions provided by your crank and pedal manufacturers.

4. Activate or Wake Up PRECISION
PRECISION automatically detects rotation. Activate PRECISION by rotating the crank a few times. For your information, PRECISION will enter sleep mode two minutes after not detecting any rotation.

B. Pair PRECISION to your Display(s)

PRECISION has been designed to work with displays that receive power data such as 4iiii Sportiiii, bike computers/head units, sport and smart watches, with both ANT+ and Bluetooth Smart. This means that you are able to link your PRECISION power data to any ANT+ or Bluetooth Smart enabled displays that accept power. To find compatible ANT+ devices, go to thisisant.com/directory/precision

1. To pair with ANT+ enabled displays (including 'Power' capable multi-sport/triathlon watches, head units, bike computers, smartphones)
Your PRECISION power meter has a permanently assigned and unique device ID that allows it to be paired to an ANT+ display device. You may need to enter this ID into the display if you are re-pairing PRECISION after adding or changing a display device or there are other ANT+ power meters devices in range. You can easily access this ANT+ ID on the 4iiii app. Please refer to the display device's instructions for pairing, as these operations are unique to each device. Ensure that the device is awake by rotating the crank.



Quick Tip: *Have you ever tried to sync/pair a device to either a watch, an app or a head unit in a gym or class just to find out that there are "multiple sensors found"? We have! But there's an easy solution to this common issue; you just have to manually input your device's ANT+ ID. To ensure that you always have your device's ANT+ ID handy, we recommend that you print the number on a label and affix it to your crank for quick reference.*

2. To pair with Bluetooth Smart enabled displays (including 'Power' capable iOS and Android apps)
Your PRECISION power meter has another permanently-assigned and unique device ID that allows it to be paired to a Bluetooth Smart display device. Please refer to the display device's instructions for pairing, as these operations are unique to each device. After Precision is paired with a Bluetooth Smart device, refer to your app instructions for pairing to Bluetooth sensors.

Quick Tip: *Our 4iiii app has a neat feature that allows you to customize your device's Bluetooth display ID. We highly recommend that you use this feature and change the default device name from PRECISION. This will make it easier to search and pair to the device the next time you use it. This will not impact the unique device ID number.*

C. Zeroing Your PRECISION Power Meter

After you've successfully paired your PRECISION to your preferred device, you'll need to 'zero' your power meter.

1. Find the appropriate Zero function on your head unit or app (most likely labeled as "Calibrate" in your bike/device settings)

2. Ensure that PRECISION is still awake; it is best to ride your bike for 1 – 4 minutes but you may also spin the crank to activate your power meter. For best results, avoid temperature swings between zero-ing and riding (steps 2-5).

Quick Tip: *PRECISION times out after 2 minutes of inactivity. Make sure your PRECISION is still awake before you press "Calibrate" or "Zero".*

3. Unclip your shoes from your pedals and place your crank arms vertically (left arm in the 6 o'clock position and right arm in the 12 o'clock position) as shown in the photo.

4. Once the crank arms are in the correct position, press the "zero offset" or "calibrate button". (Terms will differ depending on which device you're using but functionality is the same.)

5. If the zeroing is successful, you will observe two alternating numbers and a "Calibration Successful" message.

6. If the zeroing has not worked successfully, you will observe the numbers 999 or -999. This indicates that the arms are not sufficiently vertical or stable. Adjust the position to vertical or steady the bike and try again. If the calibration fails again, change the battery. In the unlikely event that re-zeroing continues to fail, please contact support@4iiii.com for further assistance.

D. Maximize PRECISION

Now that you have your PRECISION power meter ready to go, let us help you get the most out of your new sensor. To get the most out of your PRECISION unit, 4iiii recommends taking the time to understand the basics behind training and racing with a power meter.

1. If you have one, turn on your cycling app and/or your display unit.
2. Ride! PRECISION will automatically measure your power output as well as your cadence (i.e. pedaling rate).
3. Transfer data in Real time. Power-capable devices will allow you to see your data in real time.

Quick Tip: *Your power meter is particularly responsive and actively transmits data every second. The PWR field on your head unit will by default refresh the power data value every second unless you change these settings on the head unit. Most head units can display multiple power values (1 sec PWR, 3 sec PWR, 5 sec PWR, 30 sec PWR, lap PWR…) choosing which power values you want to see simply depends on how much variability/stability you want to observe or what your personal preferences are.*

Quick Tip: *For a full list of ANT+ power enabled head units, check out the ANT+ directory and select displays for Bicycle Power. ANT+ connectivity can also be added to existing devices using an ANT+ dongle adapter to use your power meter along with your existing smart phone, tablet, or laptop through available third party apps and software.*

Quick Tip: *New apps are being added regularly to use Bluetooth 4.0 to connect and record your power and ride data. The options depend on your device. For some more specific recommendations, please contact our support department and let us know what device you are using.*

Quick Tip: *Pushed Data Feed. Your data is automatically transmitted to your paired display device through ANT+ or Bluetooth Smart. Depending on the capability of this display, you will be able to upload your power data for post ride analysis. Your 4iiii iOS app will save your workout files but the Android app does not yet include this feature; the Android data is view-only. When prompted, these workout files can be sent as .fit files electronically to your email inbox.*

4. Upload your data from your display device or app
Sync with various power analysis software (eg. Training Peaks) and/or online apps such as Strava.

5. Analyze your ride
Review and analyze your data. It may take a number of rides for you to get a feel for the data you are receiving, what it means, and how to make use of it.

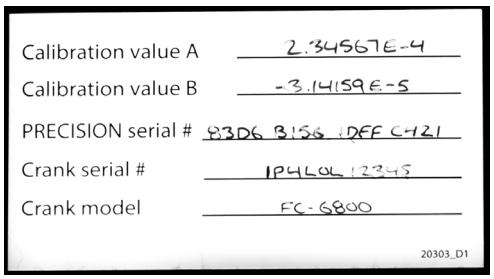
Quick Tip: *Compare trainings or routes you typically ride to see where you are improving, and set goals accordingly.*

6. Add other accessories for additional key data!

E. Understanding the Calibration and Zeroing Function of PRECISION

When you first unbox your PRECISION, you will find a calibration card containing the following pieces of information:

- Calibration Value A
- Calibration Value B
- PRECISION Serial Number
- Crank Serial Number
- Crank Model


Calibration value A 2.34567E-4
Calibration value B -3.14159E-5
PRECISION serial # 83D6 B156 DEF C421
Crank serial # 1P4L0L 12345
Crank model FC-6800
20303_D1

This is a certificate that confirms your PRECISION has been calibrated in our factory.

But what does calibration mean and why can't you calibrate PRECISION yourself?

PRECISION power meters use proprietary strain sensors that provide you with accurate power measurements. Initially, PRECISION needs to be "taught" how to translate a certain force to a specific power value. We do this initial set up for you in our factory with certified weights and we refer to it as Factory Calibration. This calibration procedure generates a linear function (also known as a calibration curve) which is unique to your PRECISION and crank combination. The calibration values on the 4iiii calibration card you receive with your pod denote the two values associated with the curve obtained at the factory. They will not change over the course of PRECISION's life.

Once outside of our factory, your PRECISION sensor - just as all power meters - will have its own signature response to environmental and temperature changes. This is normal and very similar to how you need to reset your weigh scale to 'zero' before each use. The changes can shift slightly upwards or downwards which "offsets" the calibration curve established in factory and causes you to obtain higher or lower values than you actually want. So, in order to get the best and most accurate power reading, your power meter needs to be zeroed before a ride and after any large temperature fluctuations. Note: Most (if not all) head units refer to this step as 'calibrate' although some will name the action 'zero' or 're-zero.'

Why does my head unit say calibrate then?

The calibration function on most (if not all) head units is actually a zeroing function. It's just named "Calibrate" which is where most users get confused! When you zero PRECISION and it's a successful zeroing, you should see two numbers alternating on the screen of your head unit or bike computer. There are two numbers based on how our strain sensors operate. Normal ranges for these numbers are listed in the following table:

Number 1	Number 2
8000 - 11000	18000 - 21000

If you see numbers out of these specified ranges or even negative numbers (with the exception of 999 or -999), please contact support@4iiii.com.

F. Maintenance and Care

PRECISION Durability
Your PRECISION has been designed for exceptional durability and efficiency, while still maintaining sub 1% accuracy. So go ahead and ride in the heavy rain, through the streams, the sleet, hail, and yes, snow!

NOTE: The seal of your PRECISION battery cap is critical to the success of your product.

Cleaning:
Exterior – While we have actually tested far beyond the base standards of IP65, we suggest you wash your bike with a light spray vs an industrial power washer.

Quick Tip: *The inside of your PRECISION pod is not designed to withstand dust, mud, crumbs or especially water. Do your very best to keep the inside of the pod and the pod cap clean while changing the battery!*

G. Battery Replacement

Use the battery cap tabs to twist the cap into the unlocked position (rotate left).

In a dry, water-free area, align the unlock symbol on the cap with the white dot on the pod. Remove the cap.

Gently tap the cap to free up the battery from this piece.

Insert a new, dry battery into the cap ensuring that the positive side of the battery is in contact with the cap surface. Make sure that the inside of the battery cap still has a metal clip, this is necessary for the PRECISION to function properly.

Be careful not to damage rubber seal (o-ring) when reassembling as PRECISION will no longer be waterproof if the o-ring is damaged. If you require a new rubber seal, please contact support@4iiii.com for a replacement o-ring.
(O-ring shown in RED for illustration only)

Replace and lock the cap top. Ensure that the top is completely flat and flush with the sides – use both thumbs to press into its secure position if necessary. Then rotate the cap to the right and lock it in place. Test your accuracy by trying to flip up the cap top tabs. If you can move the top at all, re-do these steps.

The seal of your PRECISION battery cap is critical to the success of your product!

H. Technical Support

For technical or customer support contact support@4iiii.com.

FCC Compliance Statement
FCC ID: ZZNPM100

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and the receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Industry Canada (IC) Compliance Statement
IC: 9896A-PM100

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. CAN ICES-3(B)/NMB-3(B)

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible d'en compromettre le fonctionnement du dispositf. CAN ICES-3(B)/NMB-3(B)

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition et la conformité de rf.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Cet émetteur ne doit pas être co-placé ni fonctionnant en même temps qu'aucune autre antenne ou émetteur. Cet équipment devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

WARRANTY NOTICE

COVERED PRODUCTS. This warranty covers the Precision product manufactured by 4iiii Innovations Inc. ("4iiii") and purchased by the end purchaser (the "Product"), unless otherwise specifically agreed in writing by 4iiii.

LIMITED WARRANTY. 4iiii warrants solely to the end purchaser of the Product, subject to the exclusions and procedures set forth below, that the Product and its internal components shall be free from defects in materials and workmanship and will substantially conform to 4iiii's applicable specifications for the Product, for a period of 12 months from the date of original purchase (the invoice date) of the Product (the "Warranty Period"). Repairs and replacement components for the Product are warranted, subject to the exclusions and procedures set forth below, to be free from defects in material and workmanship, and will substantially conform to 4iiii's applicable specifications for the Product, for 60 days from replacement or delivery, or for the balance of the original Warranty Period, whichever is greater. This LIMITED WARRANY is only valid while the Product is affixed to the end purchaser's crank.

EXCLUSION OF ALL OTHER WARRANTIES. The LIMITED WARRANTY shall apply only if the Product is installed, used, maintained, stored and operated in accordance with 4iiii's relevant User's Manual and Specifications, and the Product is not modified or misused in anyway. The Product is provided "AS IS" and the implied warranties of merchantability and fitness for a particular purpose and all other warranties, express, implied or arising by statute, by course of dealing or by trade usage, in connection with the design, sale, installation, service or use of any products or any component thereof, are excluded from this transaction and shall not apply to the Product. The LIMITED WARRANTY is in lieu of any other warranty, express or implied, including but not limited to, any warranty of merchantability or fitness for a particular purpose, title, and non-infringement.

LIMITATION OF REMEDIES. The purchaser's EXCLUSIVE REMEDY against 4iiii shall be, at 4iiii's option, the repair or replacement of any defective Product or components thereof with new, refurbished or reconditioned Product or components thereof at no charge to the end purchaser for parts and labour. The end purchaser shall be responsible for all shipping and handling costs for return of the Product with return shipping and handling costs for return after repair or replacement of the Product paid by 4iiii. The end purchaser shall notify 4iiii immediately of any defect. Repair shall be made through 4iiii or 4iiii authorized representatives only. Repair, modification or service of 4iiii products by any party other than 4iiii or 4iiii authorized representatives shall render this warranty null and void. The remedy in this paragraph shall only apply if the Product is installed, used, maintained, stored and operated in accordance with 4iiii's relevant User's Manual and Specifications, and the Product is not modified or misused in anyway. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE END PURCHASER, even if 4iiii has been advised of the possibility of such damages. Without limiting the foregoing, 4iiii shall not be liable for any damages of any kind resulting from use, quality, performance or accuracy of any Product.

4iiii IS NOT RESPONSIBLE FOR PURCHASER'S NEGLIGENCE OR UNAUTHORIZED USE OF THE PRODUCT. IN NO EVENT SHALL 4iiii BE IN ANY WAY RESPONSIBLE FOR ANY DAMAGES RESULTING FROM END PURCHASER'S OWN NEGLIGENCE, OR FROM OPERATION OF THE PRODUCT IN ANY WAY OTHER THAN AS SPECIFIED IN 4iiii's RELEVANT USER'S MANUAL AND SPECIFICATIONS. 4iiii is NOT RESPONSIBLE for defects or performance problems resulting from: (1) misuse, abuse or neglect of Product; (2) the utilization of the Product with interfaces not supported by 4iiii; (3) the operation of the Product under any specification other than, or in addition to, the specifications set forth in 4iiii's relevant User's Manual and Specifications; (4) damage caused by accident or natural events such as lightning (or other electrical discharge) or fresh/salt water immersion of Product; (5) damage occurring in transit; or (6) normal wear and tear. 4iiii IS NOT RESPONSIBLE for (1) aesthetic or structural damage to the end purchaser's crank resulting from installation or removal of the Product, or (2) damages incurred to the end purchaser's crank when the Product is sent in for warranty, service and/or replacement of the Product.

WARRANTY SERVICE. To obtain warranty service, the end purchaser must send his/her crank along with the Product and must contact 4iiii for shipping instructions and an RMA tracking number. Return the Product, freight prepaid, along with the original sales receipt as a required proof of purchase for warranty repairs, with the RMA tracking number written on the outside of the package and mail to 4iiii. An RMA will only be available for a distributor, dealer and/or purchaser if the following two criteria are met: (1) the end purchaser, distributor or dealer has registered the Product; and (2) the Product has failed the 4iiii diagnostic test (on the iOS or Android application). In the event of a Product failure for which warranty is claimed where the point of sale was through a 4iiii authorized dealer and/or distributor, such authorized dealer and/or distributor will perform an assessment of the Product, follow the 4iiii authorized removal procedure and be the contact with 4iiii while providing the end purchaser with a replacement product. In the event of a Product failure for which warranty is claimed where the point of sale was through 4iiii, if the end purchaser requires an immediate replacement, he/she can purchase a new Product, which shall be refunded upon 4iiii's receipt and validation of the failed Product.

VOIDING WARRANTY. This Limited Warranty shall be null and void if: (1) the Product is repaired, opened or serviced by anyone other than an authorized 4iiii representative; (2) the Product is installed on any non-compatible crank including, but not limited to, a carbon crank; or (3) the Product is exposed to external heat sources that expose product to temperatures in excess of storage and operating specifications.

TECHNICAL SUPPORT. Technical support is available from 4iiii by e-mail from 9 a.m. to 5 p.m. Mountain Time Monday through Friday, other than holidays. E-mail address for 4iiii is support@4iiii.com .

4iiii Innovations Inc
cranks@4iiii.com
1-800-218-3095
228 River Ave
Cochrane, AB T4C